

Application No.: 09/691273
Docket No.: TK3410USNA

Page 5

REMARKS

Claims 1-18 and 21-30 will remain pending subject to entry of the accompanying amendment. Claim 20 is cancelled and claims 25 and 26 are amended to maintain proper dependency in view of the cancellation of claim 20.

Applicants respectfully request entry of the accompanying amendment under 37 C.F.R. 1.116 as the amendment merely cancels claimed subject matter and presents no new issues which would require further search or consideration. In the alternative, the amendment places the claims into better condition for consideration on appeal.

Applicants submit herewith the Declarations under 37 C.F.R. 1.132 of Drs. Hyun Sung Lim and Hyunkook Shin, which are submitted to address the various rejections maintained in the outstanding Final Office Action. The declarations merely reflect the declarants' statements regarding the various references, of which they are inventors, which have been cited against the pending claims, and are submitted to argue against the Examiner's interpretations of the cited references so as to demonstrate that no inherency exists between the materials of the prior art and that of the present claims. As such, the Lim and Shin Declarations raise no new issues. Applicants respectfully request thorough consideration of the declarations, in the interest of compact prosecution.

Rejection under 35 U.S.C. §112

Claims 1-18 and 21-27 stand rejected under 35 U.S.C. §112, second paragraph as being indefinite. Applicants traverse this basis for rejection and respectfully request reconsideration and withdrawal thereof.

The Examiner directs attention to claims 1, 5 and 6 and argues that the claims are indefinite for variously reciting only physical properties of surface area, crush value, Frazier Permeability, hydrostatic head and Gurley Hill porosity. The Examiner states that claiming only the physical properties of the fibers and sheets of the claims is impermissible under 35 U.S.C. §112 in view of Ex parte Slob, 157 USPQ 172.

Applicants have previously traversed this basis for rejection, arguing that the Examiner's reliance on case law in an attempt to establish a *prima facie* case for rejection is legal error, analogous to the practice of deriving an obviousness rejection directly from case law, rather than from the inquiry mandated by the statute. In re Ochiai, 71 F.3d 1565, 37 USPQ2d 1127 (Fed. Cir. 1995).

The Examiner states that she is not suggesting that the term "plexifilamentary fiber" is indefinite, but argues that the claims fail to define 'the subject matter which Applicant regards as his invention', and further argues that the claims are indefinite

Application No.: 09/691273
Docket No.: TK3410USNA

Page 6

because the claims fail to state 'how the Applicant provides a polyethylene plexifilamentary fiber having said properties' and thus 'fail to set forth the patentably distinguishable features which would produce said physical properties' (Final Office Action, page 3).

In response to the Examiner's essentially '*per se*' rejection over Ex parte Slob, Applicants submit herewith an excerpt from a decision from the Board of Appeals in copending application, U.S. Serial no. 08/914,409, wherein a similar rejection over Ex parte Slob arose. In their Appeal Brief, Appellants similarly argued against the *per se* application of case law to support a rejection under 35 U.S.C. §112, to which the Board replied:

Suffice it to say that it is by now axiomatic that each case must be decided on its own underlying facts and that *per se* rules, whether applied to prior art or §112 rejections, are, *per se*, verboten. (Appeal no. 2002-1003, decision dated 31 October 2002, page 11).

However, the Board did maintain the rejection on other grounds. Applicants trust that the Examiner can readily obtain the full text of that decision, but will transmit the full text upon request by the Examiner.

Accordingly, Applicants request the Examiner to withdraw the rejection under 35 U.S.C. §112 based upon Ex parte Slob.

Applicants further believe that the definiteness of present claims can be distinguished from the rejected claim in Ex parte Slob on the facts. In Slob, the claim limitation which was objected to recited:

...a liquefiable substance having a liquefaction (sic) temperature from about 40°C. to about 300°C. and being compatible with the ingredients in the powdered detergent composition... (Slob at 172).

Clearly, the Slob claim failed to identify the "liquefiable substance" whatsoever, except by its melting point and its compatibility. In contrast, present claims 1, 5 and 6 are directed to "a polyethylene plexifilamentary fiber strand" (claim 1) and "a nonwoven unitary fibrous sheet comprised of substantially continuous polyethylene plexifilamentary fiber strands" (claims 5 and 6), which are materials well-known in the art.

Further, Applicants have reviewed the case law related to rejections under 35 U.S.C. §112 and believe that the rejection at issue should be withdrawn.

Applicants respectfully submit that flash spun fibers and sheets are well-known in the art. "A patent need not disclose what is well known in the art." In re Wands, 858 F.2d 731, 735, 8 USPQ2d 1400, 1402 (Fed. Cir. 1988). In spite of this,

Application No.: 09/691273
Docket No.: TK3410USNA

Page 7

Applicants' specification contains a complete description of how to make the claimed flash spun fibers and sheets; and

a decision on whether a claim is invalid under §112, [2]d paragraph, requires a determination of whether those skilled in the art would understand what is claimed *when the claim is read in light of the specification*. Orthokinetics Inc. v. Safety Travel Chairs Inc., 806 F2d 1565, 1 USPQ2d 1081, 1088 (Fed. Cir. 1986), emphasis added.

Applicants submit that it is well-settled that the claims should not be read 'in a vacuum', but should be evaluated based upon the disclosure in the specification, and in the present case, when the claims are considered in light of the specification, those of skill in the art would readily understand the nature of the claimed invention.

At page 3 of the Final Office Action, the Examiner states

Applicant has failed to set forth the patentably distinguishable features which would produce said physical properties [and] it is the position of the Examiner that without such limitations said claims are indefinite under Ex parte Slob.

Applicants traverse the Examiner's finding and suggest that the physical properties set forth in claims 1, 5 and 6 are exactly the 'patentably distinguishable features' of the claims as compared to the prior art, as will be expanded upon below. The mere fact that these features are described in an essentially functional manner, i.e. by the measured physical properties of the fibers and sheets, and not in another manner deemed more proper by the Examiner, should not mitigate against the definiteness of the claims.

As discussed in the Examiner Interview on 12 December 2002, Applicants don't know exactly why the new fibers and fabrics demonstrate the claimed improvements over the cited prior art, and even if they did, it is likely that any additional limitations which might further describe the 'patentable distinctions' over the prior art would also be the results of measurements of the end product, e.g. pore size between fibers, surface area of the strands (claims 1-3), etc., since the fibers and sheets have essentially the same macroscopic structure as the prior art. Nevertheless, the process of making the claimed fibers and sheets described in the specification results in the novel claimed combination of properties that have never been observed in prior art materials. In such situations, it has been held that 'functional' limitations or 'newly discovered properties' are not indefinite.

Application No.: 09/691273
Docket No.: TK3410USNA

Page 8

Our study of these cases has satisfied us, however, that any concern over the use of functional language at the so-called "point of novelty" stems largely from the fear that an applicant will attempt to distinguish over a reference disclosure by emphasizing a property or function which may not be mentioned by the reference and thereby assert that his claimed subject matter is novel. Such a *concern is not only irrelevant, it is misplaced*. In the first place, it is elementary that the mere recitation of a newly discovered function or property, inherently possessed by things in the prior art, does not cause a claim drawn to those things to distinguish over the prior art. Additionally, where the Patent Office has reason to believe that functional limitation asserted to be critical for establishing novelty in the claimed subject matter may, in fact, be an inherent characteristic of the prior art, it possesses the authority to require the applicant to prove that the subject matter shown to be in the prior art does not possess the characteristic relied on.

[W]e are unable to see merit in any proposition which would require the denial of a claim solely because of the type of language used to define the subject matter for which patent protection is sought. We are convinced that there is no support, either in the actual holdings of prior cases or in the statute, for the proposition, put forward here, that "functional" language, in and of itself, renders a claim improper. We have also found no prior decision of this or any other court which may be said to hold that there is some other ground for objecting to a claim on the basis of any language, "functional" or otherwise, beyond what is already sanctioned by the provisions of 35 U.S.C. 112. In re Swinehart, 58 C.C.P.A. 1027; 439 F.2d 210; 169 U.S.P.Q. 226 (CCPA 1971), emphasis added.

In the present application, the Examiner has indeed argued that the claimed limitations are 'inherent' in the prior art, which Applicants dispute below. As such, the Examiner's concerns that Applicants have used a newly discovered property (in this case "physical properties") to define the 'point of novelty' of the present invention are, as stated in Swinehart, misplaced.

Withdrawal of the rejection is requested.

Rejection under 35 U.S.C. 102(b) over Lim et al.

Claims 5, 26 and 27 stand rejected under 35 U.S.C. 102(b) as anticipated by Lim et al. (U.S. Patent no. 5,290,628—hereinafter the Lim '628 Patent). Applicants traverse this basis for rejection and respectfully request reconsideration and withdrawal thereof.

Applicants reiterate their comments in traverse of the application of the Lim '628 Patent, presented in their reply of 12 February 2003 (pp. 4-5). In short,

Application No.: 09/691273
Docket No.: TK3410USNA

Page 9

Applicants argued that the hydraulic needling of a staple fiber sheet into a plexifilamentary sheet as disclosed in the reference would result in a composite fabric having distinct layers of a staple fiber sheet and a plexifilamentary fiber sheet, not a "unitary fibrous sheet" as claimed, which is a "substantially homogeneous layer that is free of distinguishable laminations or other support structures" (specification, page 6, lines 4-6).

In support, Applicants submit herewith the Declaration of Dr. Hyun Sum Lim (the "Lim Declaration"), in which Dr. Lim declares that the hydraulically needled sheets of his Lim '628 Patent

have two distinctly different sides: a first side which remained essentially a flash spun polyethylene sheet layer, and a second side which remained essentially a staple fiber sheet layer. (The Lim Declaration, paragraph 4).

Accordingly, it is clear from Dr. Lim's declaration that the hydraulic needling process of the Lim '628 Patent did not 'inherently' form a "unitary fibrous sheet".

Further, the Examiner's proposition that the plexifilamentary polyethylene sheet alone of the Lim '628 Patent would meet the limitations of claim 5 is without merit, since it is clear from the Lim '628 Patent that the staple fiber sheet is needled into the plexifilamentary sheet (thus forming a 'spunlaced' sheet) specifically to achieve greater air permeability.

Following hydraulic needling, the unbonded, spunlaced nonwoven fabric has added thickness and a Frazier porosity of at least 4 ft³/ft²/min. (Column 4, lines 56-58).

In contrast, the Lim '628 Patent discloses that commercial "Tyvek®", one of the starting materials for making the examples of Lim '628 (columns 7-8), has a Frazier porosity of less than 0.1 ft³/ft²/min (Table 5, column 9).

Withdrawal of the rejection is requested on this basis.

Rejection under 35 U.S.C. 102(e) over Lim et al.

Claim 6 stands rejected under 35 U.S.C. 102(e) as anticipated by Lim et al. (U.S. Patent no. 6,034,008—hereinafter the Lim '008 Patent). Applicants traverse this basis for rejection and respectfully request reconsideration and withdrawal thereof.

Applicants reiterate their comments in traverse of the rejection over the Lim '008 Patent, as set forth in their reply of 12 February 2003 (p. 5). In response to

Application No.: 09/691273
Docket No.: TK3410USNA

Page 10

Applicants' argument that the Lim '008 Patent fails to disclose or suggest the claimed combination of "hydrostatic head of at least 110 cm and a Gurley Hill Porosity of less than 6 seconds" (claim 6), the Examiner states

This argument is not found persuasive on the grounds that Lim et al. [the Lim '008 Patent], teaches, *though not in the claimed combination*, that these properties can be obtained. In addition, it is the position of the Examiner that *since the Lim et al., article meets the chemical and structural limitations of the instantly claimed invention said combination of hydrostatic head and Gurley Hill Porosity properties are inherent to the Lim et al., article*. This position is maintained since it has been held that products having identical chemistry and structure cannot have mutually exclusive properties. *In re Spada*, 15 USPQ2d 655. (Final Office Action, pages 4-5, paragraph 6); emphasis added.

Initially, Applicants submit that the Examiner's reliance upon Spada is misplaced. According to the MPEP, the rule of Spada is

A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical *chemical structure*, the properties applicant discloses and/or claims are necessarily present. MPEP 2112.01, citing *In re Spada*, 911 F.2d 705; 15 USPQ2d 1655 (Fed. Cir. 1990); emphasis added.

Spada is directed to the properties of a chemical composition of matter and to the chemical structure thereof.

In contrast, the present claims, while being drawn to a "nonwoven unitary fibrous sheet comprised of substantially continuous polyethylene plexifilamentary fiber strands", much as in the prior art, are not directed to the chemical properties of polyethylene, but to a structure formed from polyethylene by many steps, including dissolving, flash spinning fibers, laying down the fibers and consolidating the fibers into sheets. The fact that the polyethylene used to make the fabrics in the cited reference(s) may have the same chemical characteristics and chemical structure as the polyethylene used in the presently claimed invention, is not determinative of the physical properties of the fabrics made therefrom. For example, it cannot be argued that a polyethylene film would have the same hydrostatic head and air permeability properties as would a polyethylene plexifilamentary fabric, even though both are made from polyethylene.

Further in traverse of the Examiner's inherency argument, it is clear from the Examples of the Lim '008 Patent that not all flash spun polyethylene plexifilamentary sheets, in spite of being made of the same polyethylene and having essentially

Application No.: 09/691273
Docket No.: TK3410USNA

Page 11

identical macroscopic structures, have the same hydrostatic head and Gurley Hill Porosity properties. Therefore, it cannot be argued that the claim 6 limitations are 'inherent' in the prior art, since even within the prior art patent disclosure, it is clear that not all sheets have identical properties. "Inherency must be a necessary result and not merely a possible result." *In re Oelrich*, 666 F2d 578, 212 U.S.P.Q. 323 (CCPA 1981).

The Examiner admits that the claimed combination of hydrostatic head and Gurley Hill porosity characteristics are not disclosed in a single fabric of the Lim '008 Patent, but maintains the anticipation rejection anyway, because the Lim '008 Patent arguably discloses that "these properties can be obtained".

Applicants respectfully submit that the Examiner is merely picking and choosing from among the many examples of the Lim '008 Patent only those limitation disclosures that suit her position. When considered as a whole, it is clear that the cited reference fails to enable the Examiner's rejection, that is, that a flash spun polyethylene fabric having the combination of hydrostatic head of at least 110 cm and Gurley Hill Porosity of less than 6 seconds can be obtained. In this regard, Dr. Lim declares

I disagree with the Examiner's finding that it was possible at the time the invention was made to merely choose among various disclosed ranges of hydrohead and Gurley Hill porosity to obtain a fabric having the combination of properties claimed in the present application...Further, I declare that none of the sheets disclosed in my '008 Patent had combinations of hydrohead and Gurley Hill within the presently claimed ranges. (The Lim Declaration, paragraph 5).

Withdrawal of the rejection under 35 U.S.C. §102(e) is respectfully requested for failing to establish a *prima facie* case of anticipation.

Rejection under 35 U.S.C. 102(b) over Steuber

Claims 20, 25 and 26 stand rejected under 35 U.S.C. 102(b) as anticipated by Steuber (U.S. Patent no. 3,169,899). Applicants traverse this basis for rejection and respectfully request reconsideration and withdrawal thereof, in view of the accompanying amendment.

Rejection under 35 U.S.C. 102(b)/103 over Steuber

Claims 1-18 stand rejected under 35 U.S.C. 102(b) as anticipated by, or under 35 U.S.C. 103(a) as obvious over Steuber. Applicants traverse this basis for rejection and respectfully request reconsideration and withdrawal thereof.

Application No.: 09/691273
Docket No.: TK3410USNA

Page 12

Again, the Examiner relies on an inherency position to support rejection of the claims. Applicants reiterate their comments above with respect to the Examiner's misplaced reliance upon In re Spada to refute the Examiner's inherency position. The identity of polymer between the reference and the present claims is immaterial.

The mere fact that the prior art reference discloses flash spun plexifilamentary fabrics made from polyethylene does not necessarily mean that those fibers and fabrics would inherently possess the combinations of properties claimed herein.

The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. In re Rijckaert, 9 F.3d 1531, 1534; 28 USPQ2d 1955, 1957 (Fed. Cir. 1993); In re Oelrich, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981).

In this respect, the Examiner's attention is directed to the exemplary data of the present specification, which if closely considered, indicates that even when formed according to Applicants' newly disclosed process, not every example has a combination of the claimed properties which fall within every claim. For example, Comparative Example A (Table 1, page 22), which is formed by a process quite similar to Steuber, has a Gurley Hill porosity of 131 seconds, a far lower air permeability than, for instance, claim 6, and a hydrostatic head of only 40 cm, again well outside the scope of claim 6. Likewise, the exemplary data produced according to the present application indicates that the sheets have a wide variety of combinations of properties, none of which meets each and every limitation of each and every claim. For example, Example 1 (Table 1, page 22), meets the limitations of claims 5 and 7, but not of claims 6 or 8-12.

Thus, if even the individual examples of the present application, made according to Applicants' newly disclosed process, don't inherently meet all the limitations of every claim, how can it be said that the fabrics of Steuber would inherently do so?

Withdrawal of the rejections for failure to establish a *prima facie* case of either anticipation or obviousness is requested.

Rejection under 35 U.S.C. 102(b)/103 over Blades

Claims 1-18 stand rejected under 35 U.S.C. 102(b) as anticipated by, or under 35 U.S.C. 103(a) as obvious over Blades (U.S. Patent no. 3,081,519). Applicants traverse this basis for rejection and respectfully request reconsideration and withdrawal thereof.

Application No.: 09/691273
Docket No.: TK3410USNA

Page 13

The Examiner states that the same arguments applied to Steuber apply to Blades (Final Office Action, paragraph 10).

Likewise, Applicants submit that the arguments which clearly destroy the applicability of Steuber, set forth above, also destroy the applicability of Blades. It cannot be said that the Blades fabrics must inherently meet all the present claim limitations, when even the various examples within the present application do not. Withdrawal of the rejections is requested.

Rejection under 35 U.S.C. 102(b)/103 over the Lim '628 Patent

Claims 6-18 and 24-27 stand rejected under 35 U.S.C. 102(b) as anticipated by, or under 35 U.S.C. 103(a) as obvious over the Lim '628 Patent, as applied to claim 5 above. Applicants traverse this basis for rejection and respectfully request reconsideration and withdrawal thereof.

Initially, within the text of this rejection (Final Office Action, paragraph 11), Applicants note that the Examiner cites "Lim '068", a reference not of record. Applicants presume herein that the Examiner intended to refer to Lim '628.

Applicants reiterate their comments in traverse of the rejection of claim 5 over the Lim '628 Patent. There is nothing within the reference which supports the Examiner's assertions of inherency, and In re Spada is misapplied.

Likewise, Applicants submit that the data in the present application demonstrates that fabrics made according to the presently disclosed process do not invariably meet the limitations of every claim, and therefore the Tyvek® sheets of the Lim '628 Patent alone, cannot be said to inherently meet the present claim limitations. Again, the Lim '628 Patent discloses that commercial "Tyvek®", one of the starting materials for making the examples of Lim '628 (columns 7-8), has a Frazier porosity of less than 0.1 ft³/ft²/min (Table 5, column 9), and does not achieve the desired Frazier air permeabilities unless needled together with the staple fiber sheet, after which time it is no longer a "unitary fibrous sheet" within the meaning of claims 5 and 6.

Rejection under 35 U.S.C. 102(b) over Shin et al.

Claims 28-30 stand rejected under 35 U.S.C. 102(b) as anticipated by Shin et al. (U.S. Patent no. 5,147,568). Applicants traverse this basis for rejection and respectfully request reconsideration and withdrawal thereof.

The Examiner opines that since Shin et al. disclose flash spinning of fibers from a hydrocarbon/co-solvent spin mixture, if those fibers were laid down to form a nonwoven sheet, the sheets so formed would inherently demonstrate the limitations

Application No.: 09/691273
Docket No.: TK3410USNA

Page 14

of claims 28-30. Applicants respectfully submit that the Examiner's position as to inherency is without merit, as demonstrated by the Shin Declaration, and further represents an 'obvious to try' standard of unpatentability, which is prohibited.

Dr. Shin declares that plexifilamentary film-fibrils which were formed during his investigations resulting in his '568 Patent do not inherently meet the surface area limitations set forth in claim 28. In this regard, Dr. Shin states that he selected fibers disclosed in the Examples of the '568 Patent which he deemed most likely to meet the limitations of claim 28, those formed at temperatures and concentrations closest to the process parameters of claim 28 and having been indicated in the '568 Patent as having a fibrillation level of "Fine" or "Very Fine" (Shin Declaration, paragraph 6). Upon measurement of those fibers, it was revealed that their BET Surface Areas were invariably above 10 m²/g (Shin Declaration, paragraph 7), and thus outside the scope of claim 28.

Thus, in contrast to the Examiner's assertion of the inherency of the Shin et al. fibers in meeting the limitations of claim 28, it is clearly demonstrated that they do not.

In paragraph 5 of the Shin Declaration, Dr. Shin addresses the Examiner's statement at the top of page 9 of the Final Office Action, and indicates that the Examiner's statement is "an inappropriate over-simplification" of the similarities between the processes disclosed in his '568 Patent, and those of the present application.

Accordingly, Applicants respectfully submit that the Examiner has failed to provide a basis in fact which would reasonably support the determination of inherency, as required by MPEP 2112.

In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art. Ex parte Levy, 17 USPQ2d 1461, 1464 (BPAI 1990) (emphasis in original). MPEP 2112.

Further, Applicants redirect the Examiner's attention to the exemplary data of the present application, which demonstrates that even plexifilamentary polyethylene fabrics produced according to the presently claimed process (that of claims 28-30), fail to invariably meet the limitations of all the claims. Thus, inherency cannot be said to be certain, or to necessarily flow from the prior art Shin et al. disclosure.

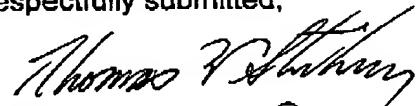
Withdrawal of all rejections and allowance of all claims is requested.

Application No.: 09/691273
Docket No.: TK3410USNA

Pag 15

In view of the foregoing, allowance of the above-referenced application is respectfully requested.

Respectfully submitted,



THOMAS W. STEINBERG
ATTORNEY FOR APPLICANTS
Registration No.: 37,013
Telephone: (302) 892-0887
Facsimile: (302) 892-7343

Dated: 11/11/03

TWS:fgl

Enclosures: Declaration of Dr. Shin
Declaration of Dr. Lim
Excerpt from Board of Appeals Decision